

What Is Claimed Is:

1. A filled and wound muffler insert for use in a muffler comprising:

a filled insert comprising at least one pipe and a wool-type product, said wool-type product surrounding a portion of said at least one pipe; and

a yarn thread wrapped around and secured to an outer portion of said wool-type product.

2. The filled and wound muffler insert of claim 1, wherein at least one of said at least one pipe(s) comprises a perforated pipe.

3. The filled and wound muffler insert of claim 1, wherein said filled insert further comprises at least one partition(s) coupled to said at least one pipe.

4. The filled and wound muffler insert of claim 3, wherein at least one of said at least one partitions comprises a perforated partition.

5. The filled and wound muffler insert of claim 1, wherein said yarn thread comprises a polymer yarn thread having a tensile strength at room temperature of at least 550 megapascals and having a tensile strength at temperatures greater than about 80 degrees Celsius of at most 50 megapascals.

6. The filled and wound insert of claim 5, wherein said polymer yarn thread is selected from the group consisting of polypropylene yarn thread and modified polyethylene.

7. The filled and wound insert of claim 5, wherein said polymer yarn thread has a fiber diameter of between approximately 0.2 and 1.0 millimeters.

8. The filled and wound insert of claim 1, wherein said yarn thread comprises a steel yarn thread.

9. The filled and wound insert of claim 1, wherein said wool-type product comprises one or more strands of a continuous strand material.

10. The filled and wound insert of claim 9, wherein said continuous strand material comprises one or more strands each comprising a plurality of glass filaments selected from the group consisting of E-glass filaments and S-glass filaments.

11. A filled and wound insert comprising:
a filled insert comprising a core material and a wool-type product, said wool-type product surrounding a portion of said core material; and
a yarn thread wrapped around an outer portion of said wool-type product.

12. The filled and wound insert of claim 11, wherein said core material is selected from the group consisting of a metallic core material and a plastic core material.

13. The filled and wound muffler insert of claim 11, wherein said yarn thread has a tensile strength of at least about 550 megapascals at temperatures greater than or equal to room temperature.

14. The filled and wound insert of claim 11, wherein said yarn thread is selected from the group consisting of a polymer yarn thread and a steel yarn thread.

15. The filled and wound insert of claim 14, wherein said polymer yarn thread has a fiber diameter of between approximately 0.2 and 1.0 millimeters.

16. A method for forming a filled and wound muffler insert comprising:

providing an unfilled muffler insert;

coupling said unfilled muffler insert within a shaped tool, said shaped tool having an upper section and a lower section, said shaped tool and said unfilled muffler insert defining at least one compartment there between;

introducing a fibrous material within one of said at least one compartment to form a filled insert;

placing said filled insert onto a winding machine, said winding tool defining a center axis;

moving said upper section of said shaped tool away from said lower section along said center axis to create a gap;

wrapping a yarn thread around a portion of said filled insert exposed within said gap to form the filled and wound muffler insert;

removing said shaped tool and the filled and wound muffler insert from said winding tool; and

extracting the filled and wound muffler insert from said shaped tool.

17. The method of claim 16, wherein introducing a fibrous material comprises:

introducing a nozzle of a texturizing device within a fill opening of said shaped tool;

introducing one or more strands of a continuous strand material from said texturizing device through said nozzle and into said compartment under vacuum pressure.

18. The method of claim 16, wherein wrapping a yarn thread comprises:

coupling said yarn thread contained on said winding machine to a gripper located at a position near said gap;

rotating a portion of said winding machine around said filled insert such that said yarn thread is wound onto said filled insert; and

cutting said yarn thread between said filled insert and said winding machine.

19. The method of claim 18 further comprising affixing said yarn thread around said filled insert.

20. The method of claim 19, wherein affixing said yarn thread around said filled insert comprises affixing said end to said another portion of said yarn thread.

21. The method of claim 20, wherein affixing said end comprises ultrasonically welding said end to said another portion of said yarn thread.

22. The method of claim 20, wherein affixing said end comprises hot welding said end to said another portion of said yarn thread.

23. The method of claim 20, wherein affixing said yarn thread around said filled insert comprises knotting said end of said yarn thread to said another portion of said yarn thread.

24. The method of claim 19, wherein affixing said yarn thread around said filled insert comprises affixing said end within said fibrous portion.

25. A method for forming an odd-shaped muffler comprising:
providing an unfilled insert;
coupling a shaped tool around a portion of said unfilled insert, said shaped tool having an upper section and a lower section, said shaped tool and said unfilled insert defining a compartment there between;
forming a filled insert within said shaped tool;
placing said filled insert onto a winding machine;
moving said upper section of said shaped tool away from said lower section to create a gap;
wrapping and securing a yarn thread around a portion of said filled insert exposed within said gap to form a filled and wound muffler insert;
removing said shaped tool and said filled and wound muffler insert from said winding tool;
extracting said filled and wound muffler insert from said shaped tool; and
coupling said filled and wound muffler insert within a muffler shell.

26. The method of claim 25, wherein forming a filled insert comprises:
introducing a nozzle of a texturizing device within a fill opening of said shaped tool;

introducing one or more strands of a continuous strand material from said texturizing device through said nozzle and into said compartment under vacuum pressure.

27. The method of claim 25, wherein wrapping and securing a yarn thread comprises:

coupling said yarn thread contained on said winding machine to said filled insert within said gap;

rotating a portion of said winding machine around said filled insert such that said yarn thread is wound onto said filled insert; and

cutting said yarn thread between said filled insert and said winding machine; and

securing said yarn thread around said filled insert.

28. The method of claim 27, wherein securing said yarn thread around said filled insert comprises affixing said end to said another portion of said yarn thread.

29. The method of claim 28, wherein affixing said end comprises ultrasonically welding said end to said another portion of said yarn thread.

30. The method of claim 28, wherein affixing said end comprises hot welding said end to said another portion of said yarn thread.

31. The method of claim 27, wherein securing said yarn thread around said filled insert comprises knotting said end to said another portion of said yarn thread.

32. The method of claim 25, wherein coupling said filled and wound muffler insert within a muffler shell comprises:

providing a muffler shell having a pair of open ends and an interior region;

providing a pair of end pieces;

pressing said filled and wound muffler insert through said open end and within said interior region;

coupling one of said pair of end pieces to one of said pair of open ends;

coupling the other of said pair of end pieces to the other of said pair of open ends;

sealingly affixing said one of said pair of end pieces to said one of said pair of open ends; and

sealingly affixing said other of said pair of end pieces to said other of said pair of open ends.

33. The method of claim 25, wherein coupling said filled and wound muffler insert within a muffler shell comprises:

providing a muffler shell having an interior region and a first end and second end; and

coupling said muffler shell around said filled and wound muffler insert such that said filled and wound muffler insert is substantially contained within said interior region and such that said first end substantially abuts said second end; and

sealingly affixing said first end to said second end.

34. The method of claim 25 further comprising moving said filled insert and said bottom portion of said shaped tool upward or downward along said center axis.